CLAIMS

1. A communication method for conducting communication among nodes that form a communication network of bus type by using set communication parameters, the communication method comprising:

a designation step of designating any one of said nodes as a master node, designating other nodes as slave nodes, and forming a logical star connection;

a determination step of determining communication parameters between said master node and respective slave nodes; and

a communication step of conducting communication between said slave nodes via said master node by using communication parameters determined in the determination step.

2. The communication method according to claim 1, wherein the communication method further comprising: an alteration step in which said master node monitors communication states between said master node and at least one of said slave nodes and alters successively communication parameters between said master node and said at least one of said slave nodes.

3. A communication method for conducting communication among nodes that form a communication network of bus type by using set communication parameters, the communication method comprising:

an initial step of designating a node that would become best in transmission quality when a logical star connection with other nodes were conducted, as a master node based on transmission qualities between nodes, designating other nodes as slave nodes, and star-connecting the nodes logically; and

an alteration step, responsive to existence of such a node that would become best in transmission quality when logical star connections with other nodes were conducted in response to connection of a new node or a change of a communication state, of altering said node to a master node and altering a current master node to a slave node.

4. The communication method according to claim 3, wherein the alteration step comprises a transfer step of transferring communication parameters among all nodes inclusive of the current master node held by the current master node to a master node after alteration.

5. The communication method according to claim 4, wherein the alteration step comprises a notice step in which the master node after alteration sends a notice to the effect that its own master node has been altered to the master node, to other nodes.

6. The communication method according to claim 3, wherein the initial step comprises:

a first designation step of designating a node first connected to said communication network as a master node;

a second designation step of designating a node secondly connected to said communication network as a first slave node;

a first negotiation step of determining communication parameters between said master node and said first slave node;

a third designation step of designating a node thirdly connected to said communication network as a second slave node;

a second negotiation step of determining communication parameters between said master node and said second slave node and communication parameters between said first slave node and said second slave node;

an acquisition step in which said master node acquires the communication parameters between said first slave node

and said second slave node;

an alteration and designation step in which said master node designates a node having best transmission qualities with respect to other nodes, from among said master node, said first slave node, and said second slave node, as a master node after alteration; and

a parameter transfer step of transferring communication parameters among all nodes inclusive of the master node before alteration held by the master node before alteration to said master node after alteration.

7. A communication method for conducting communication among nodes that form a communication network of bus type by using set communication parameters, the communication method comprising:

a master designation step of designating a node that becomes best in transmission quality between said node and other nodes, from among all nodes, as a master node;

a grouping step of grouping nodes other than said master node into node groups each having favorable transmission qualities;

a sub-master designation step of designating, for each of said grouped node groups, a node having best transmission qualities with respect to other nodes in its own node group and said master node, as a sub-master node; and

a logical connection step of logically star-connecting said sub-master node to said master node and logically star-connecting other nodes in its own node group to said sub-master node.

8. A communication system for conducting communication among nodes that form a communication network of bus type by using set communication parameters, said communication system comprising:

one master node selected from among said nodes; and

one or more slave nodes that are nodes other than said master node, said one or more slave nodes logically star-connected to said master node, each of said one or more slave nodes conducting communication with another node via said master node by using communication parameters negotiated with said master node.

9. The communication system according to claim 8, wherein said master node comprises an alteration unit which monitors communication states between said master node and said one or more slave nodes and altering successively communication parameters between said master node and said one or more slave nodes.

10. The communication system for conducting communication among nodes that form a communication network of bus type by using set communication parameters, wherein each node comprises a processing unit, and

if its own node is designated as a master node logically star-connected to other nodes and if there exists such a node that would become best in transmission quality when logical star connections with other nodes were conducted in response to connection of a new node or a change of a communication state, then said processing unit conducts processing of ordering alteration of said node to a master node and transferring communication parameters among all nodes currently held to a master node after alteration.

11. The communication system according to claim 10, wherein each node further comprises a notice unit which sends a notice to the effect that its own node has been designated as the master node, to other nodes, when its own node is designated as said master node after alteration.

12. A communication system for conducting communication among nodes that form a communication network of bus type by using set communication parameters, said communication system comprising:

a master node that is selected from among all nodes

and that is best in transmission quality with respect to other nodes;

a sub-master node, for each of node groups grouped as node groups having favorable transmission qualities, having best transmission qualities with respect to other nodes in its own node group and said master node, said sub-master node being logically star-connected to said master node; and

slave nodes logically star-connected in each node group to said sub-master node.